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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,829	04/20/2004	Louis A. Lippincott	10559-101002	5288

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EXAMINER

CHEN, WENPENG

ART UNIT PAPER NUMBER

2624

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/828,829

Applicant(s)

LIPPINCOTT, LOUIS A.

Examiner

Wenpeng Chen

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/1/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 101

1. Claim 15 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility states in page 53 that "A claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory." However, Claim 15 does not recite explicitly "a computer-readable medium encoded with a computer program". The recitation of "an article comprising a computer-readable medium which stores computer-executable instructions " may include other nonstatutory subject matters."

Currently in TC 2600, it is required explicitly to include "computer-readable medium", "encoded", and "computer program" in the claim language to make it explicitly a statutory subject matter.

Claim Rejections - 35 USC § 112

2. Claims 2-5, 11-13, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for the following reasons.

There are insufficient antecedent bases for the following limitations.

-- Claim 2 recites the limitation "the memory" in line 3.

- Claim 2 recites the limitation "the entire image" in line 8.
- Claim 2 recites the limitation "the vertically scaled, set of pixel segments"" in line 9.
- Claim 2 recites the limitation "the vertically scaled image"" in line 12.
- Claim 11 recites the limitation "the first element" in lines 1-2.
- Claim 15 recites the limitation "the memory" in line 8.
- Claim 15 recites the limitation "the memory" in line 14.
- Claim 15 recites the limitation "the vertically scaled, set of pixel segments"" in line 15.
- Claim 15 recites the limitation "the vertically scaled image"" in line 17.

Claim Rejections - 35 USC § 103

3. Claims 2-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahill, III (US patent 5,831,592 cited in IDS and previously in the parent case) in view of the admitted prior art (page 1 to page 3, line 7 of the present specification).

a. Cahill teaches a method comprising:

-- for Claim 2, storing a television image; (column 11, line 27 to column 12, line 50; Data are stored in DRAM 408.)

-- for Claim 2, reading locations from the memory at an image update rate to fetch first pixels in the image, which are vertically contiguous in the image; (column 11, line 27 to column 12, line 50;)

-- for Claim 2, vertically scaling the first pixels to produce a vertically scaled set of pixels representing scaling of the entire television image; (column 11, line 27 to column 12, line 50; column 16, lines 1-49; column 20, line 17 to column 22, line 8; Figs. 11, 13, 14; The passages in

Art Unit: 2624

column 15, lines 47-50 and column 16, lines 1-2 indicate that the process of element 1102 is optional. The case without pre-scaling teaches this feature. ; The vertically filtered image is a sequence of intermediate images that are scaled in the vertical direction. When the DDA ratio is larger than 1 such as the 2.75 ratio shown in Table V, the image is compressed.)

-- for Claim 2, after said vertically scaling of the entire image, reading the vertically scaled, set of pixel segments from the memory at an image display rate and horizontally scaling each vertically scaled horizontal pixel segment of the vertically scaled image at the image display rate to form a final two-dimensional scaled image of a lower definition; (column 11, line 27 to column 12, line 50; column 20, line 17 to column 22, line 8; column 16, lines 1-2; Figs. 11, 13, 14; The stream of the intermediate pixels is processed by the horizontal filter to form a final two-dimensional scaled image. When the DDA ratio is larger than 1 such as the 2.75 ratio shown in Table VIII, the image is spatially compressed in two dimensions. When the image is compressed in both dimensions, the result is an image of lower definition. The horizontal DDA ratio is in general different from the vertical DDA ratio.)

-- for Claim 3, storing, reading, and scaling a sequence of images from said higher definition television images representing video sequence of images to said lower definition sequence of images; (Fig. 3; column 5, lines 16-64; column 11, line 27 to column 12, line 50; Data are stored in DRAM 408. A video is a sequence of images.)

-- for Claim 3, displaying said lower definition sequence of images; (Fig. 3; column 5, lines 41-50)

-- for Claim 4, wherein said vertically scaling comprises reading X locations from a memory at an image update rate by reading a plurality of luminance planes in a pre-determined

Art Unit: 2624

order. (column 6, lines 37-45; column 10, line 34 to column 11, line 24; A video has many frames, each having macroblocks, each macroblock having Y, U, and V components. The reading of the macroblocks and frames has a predetermined order. Therefore, reading of the Y planes also follows a predetermined order.)

Cahill further teaches that its method and system is for display motion video images in a PC environment (column 1, lines 14-19.) In Fig. 3, video generator 306 provides video image data to video subsystem 308, which comprises a DRAM 408. The DRAM 408 provides images data to vertical scaler. When the mode of the pre-scaler is set at "zero," no pre-scaling is performed. The input data are directly provided to the vertical scaler 1104 at the video rate that is approximately the image update rate. Therefore, the vertical scaling is performed implicitly at the image update rate. The vertically scaled data are then horizontally scaled by horizontal scaler 1110. The horizontally scaled data are then fed to D/A converter to generate analog signal for computer display monitor 310 that has a display rate. Inherently, the output data shall have a rate to match the display rate for display.

However, Cahill does not explicitly teach the limitations of (1) HDTV and (2) that the vertical scaling process occurs at a rate that is smaller than a rate at which the horizontal scaling process occurs.

The Applicant admitted that the prior art teaches:

--with regard to Claims 1 and 5, a method to convert, thus reading, HDTV images (having an update rate of 60 Hz) into image data for displaying on a PC monitor (having a display rate of 85 Hz.) (pages 1-2 of the present specification)

It is desirable to broaden application so various images can be processed for being displayed on various display devices. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to combine Cahill's method and system and the teaching of the admitted prior art to convert HDTV images (having an update rate of 60 Hz) into image data for displaying on a PC monitor (having a display rate of 85 Hz) because the combination broadens application of Cahill's system. In the combination, the first scaling process (the vertical scaling) occurs at an update rate of 60 Hz that is smaller than a display rate of 85 Hz at which the second scaling process (the horizontal scaling) occurs.

b. Cahill teaches an apparatus comprising:

-- for Claim 6, a memory operable to store a television image; (column 11, line 27 to column 12, line 50; Data are stored in DRAM 408.)

-- for Claim 6, a scaling element, configured to first fetch pixels of the higher definition television image and to vertically scale the X higher definition pixels to produce a vertically scaled image of contiguous, vertically scaled, horizontal pixels in the memory and to read pixels of the vertically scaled image only after the entire vertically scaled image has been formed, at an image display rate and horizontally scale pixels of the vertically scaled image at the image display rate to form a lower definition image of pixel representing a final two-dimensional scaled image; (column 11, line 27 to column 12, line 50; column 16, lines 1-49; column 20, line 17 to column 22, line 8; Figs. 11, 13, 14; The passages in column 15, lines 47-50 and column 16, lines 1-2 indicate that the process of element 1102 is optional. The case without pre-scaling teaches this feature. ; The vertically filtered image is a sequence of intermediate images that are scaled in

Art Unit: 2624

the vertical direction. When the DDA ratio is larger than 1 such as the 2.75 ratio shown in Table V, the image is compressed. column 11, line 27 to column 12, line 50; column 20, line 17 to column 22, line 8; column 16, lines 1-2; Figs. 11, 13, 14; The stream of the intermediate pixels is processed by the horizontal filter to form a final two-dimensional scaled image. When the DDA ratio is larger than 1 such as the 2.75 ratio shown in Table VIII, the image is spatially compressed in two dimensions. When the image is compressed in both dimensions, the result is an image of lower definition. The horizontal DDA ratio is in general different from the vertical DDA ratio.)

-- for Claim 6, a computer monitor operable to display the final two-dimensional scaled image; (column 5, lines 52-58)

-- for Claim 7, wherein the memory, and scaling element store, read, and scale a plurality of images in a high definition television video sequence of images; (column 6, lines 37-45; column 10, line 34 to column 11, line 24; A video has many frames, each of which is scaled.)

-- for Claim 8, in which the scaling element comprises at least one integrated circuit; (Figs. 11, 13)

-- for Claim 9, wherein the scaling element reads locations in the memory at an image update rate by reading a plurality of luminance planes in a pre-determined order; (column 6, lines 37-45; column 10, line 34 to column 11, line 24; A video has many frames, each having macroblocks, each macroblock having a Y, U, V components. The reading of the macroblocks and frames has a predetermined order. Therefore, reading of the Y planes also follows a predetermined order.)

Art Unit: 2624

-- for Claim 11, wherein the first element comprises a memory interface, an input pixel formatting circuit, a pixel filtering circuit and an output pixel formatting circuit; (Figs. 11, 13; Interface 506 is the memory interface. The top-Row Buffer is the formatting circuit, formatting the input pixels for filtering. Elements 1304, 1306, and 1308 form the filtering circuit. Converter 1120 is the output formatting circuit.)

-- for Claim 12, in which the input pixel formatting circuit has three sets of luminance plane inputs; (column 6, lines 37-45; column 10, line 34 to column 11, line 24; The YUV are the three luminance planes defined by the Applicant.)

-- for Claim 13, in which the pixel filtering circuit operates on both luminance and chrominance pixels, the pixel filtering circuit receiving and outputting horizontal pixel segments of a similar size; (column 6, lines 37-45; column 10, line 34 to column 11, line 24; The Y is the luminance data and U and V are the chrominance data.)

-- for Claim 14, in which the scaling element includes a polyphase filter. (column 20, line 32 to column 22, line 45; The weights of the filters teach a polyphase filter.)

Cahill further teaches that its method and system is for display motion video images in a PC environment (column 1, lines 14-19.) In Fig. 3, video generator 306 provides video image data to video subsystem 308, which comprises a DRAM 408. The DRAM 408 provides images data to vertical scaler. When the mode of the pre-scaler is set at "zero," no pre-scaling is performed. The input data are directly provided to the vertical scaler 1104 at the video rate that is approximately the image update rate. Therefore, the vertical scaling is performed implicitly at the image update rate. The vertically scaled data are then horizontally scaled by horizontal scaler 1110. The horizontally scaled data are then fed to D/A converter to generate analog signal for

Art Unit: 2624

computer display monitor 310 that has a display rate. Inherently, the output data shall have a rate to match the display rate for display.

However, Cahill does not explicitly teach the limitations of (1) HDTV and (2) that the vertical scaling process occurs at a rate that is smaller than a rate at which the horizontal scaling process occurs.

The Applicant admitted that the prior art teaches:

-- with regard to Claims 6 and 10 a method to convert, thus reading, HDTV images (having an update rate of 60 Hz) into image data for displaying on a PC monitor (having a display rate of 85 Hz.) (pages 1-2 of the present specification)

It is desirable to broaden application so various images can be processed for being displayed on various display devices. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to combine Cahill's method and system and the teaching of the admitted prior art to convert HDTV images (having an update rate of 60 Hz) into image data for displaying on a PC monitor (having a display rate of 85 Hz) because the combination broadens application of Cahill's system. In the combination, the first scaling process (the vertical scaling) occurs at an update rate of 60 Hz that is smaller than a display rate of 85 Hz at which the second scaling process (the horizontal scaling) occurs.

c. Claim 15 recites an article corresponding to the method defined in Claim 2. Cahill teaches using a PC for host processor 302 for processing the image data. It is well known that a PC has at least a memory which stores computer-executable instructions. Cahill's PC using for scaling possesses a memory, which is an article, that can carry instructions taught by the

Art Unit: 2624

combination of Cahill and the admitted prior art. The combination teaches the article of Claim 15.

Conclusion

4. The prior art made of record in form PTO-892 and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is 571-272-7431. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Wenpeng Chen
Primary Examiner
Art Unit 2624

September 25, 2006

